REMARKS

The Interview

Applicants thank the Examiner for the interview held on June 21, 2011.

The substance of the interview is reflected in the amendments herein and the comments provided below.

Claim Amendments

Claims 10-12 are cancelled.

Claim 1 is amended by the incorporation of the elements of former claim 23, i.e., that the proportion of LCDs in the resultant mixture as a whole is 5 to 50% by weight.

Former claim 23 is amended by reciting that the upper limit of the proportion of LCDs in the resultant mixture as a whole is about 30% by weight. Support for this can be found, for example, in experiment number 5 appearing in Table 1 on page 13 of the specification. See *In re Blaser et al.*, 556 F2d 534, 194 USPQ 122 (CCPA 1977) and *In re Wertheim et al.*, 541 F2d 257, 191 USPQ 90 (CCPA 1976).

Claim 24, which was indicated to be likely allowable at the interview has been rewritten in independent form. Claim 25 has been made dependent on claim 24 and additional dependent claims are added that depend on claim 24. The new dependent claims correspond to already existing pending claims, i.e., claim 27 corresponds to claim 23, claim 28 corresponds to claim 22, claim 29 corresponds to claim 4, claim 30 corresponds to claim 5, claim 31 corresponds to claim 7, claim 32 corresponds to claim 9, and new claim 33 corresponds to amended claim 23.

Claim Rejections Under 35 USC § 103

Applicants respectfully disagree with the Examiner about the obviousness of former claim 1, but amended the claim to advance the application to an expeditious allowance.

Amended Claim 1 is not taught or suggested by the combination of Bickford in view of Kaida.

Kaida merely teaches that LCDs can be recycled by feeding into a smelting furnace.

Bickford teaches a process where organics containing waste materials that contain metals are vitrified and metals are recovered therefrom. See abstract. Transition metal oxides are added for the dual purpose of increasing the rate of oxidation of organic materials

and to buffer the redox potential of the melt so that the metals of interest, i.e., noble metals, could be recovered. See abstract.

The amount of metal oxides added are disclosed to be a sufficient amount to enable the organic material to oxidize and to buffer the redox potential to a level where the selected metals are reduced to the metallic state. See column 5, lines 18-24. The amount of metal oxides is disclosed to be dependent on the choice of metal oxides and the composition of the wastes, and the needed amount may be found by determining the amount of organic materials to be treated and the organic concentration of the materials. See, e.g., column 5, lines 25-35. No specific ranges are disclosed at all.

The examples in Bickford also are unclear on the amount of metal oxides used and the amount of other metals present in the processed materials. In example 1 of Bickford a cesium loaded resin was processed from a wastewater solution created from the processing of nuclear fuel. The cesium loaded resin was mixed together with borosilicate glass frit and high level radioactive waste (HLW) sludge that was a residue of chemical processing of uranium fuel and targets after irradiation in nuclear reactors, and the mixture was incinerated. No amounts of any of these were specified. The next example 2 in Bickford indicates the amounts of some ingredients, e.g., 20 g frit, 2.5 g. anhydrous borax, …, but not of all ingredients, e.g., the amount of the resin of example 1 was not specified or of amount of cesium carbonate. Example 3 also does not provide much specific guidance. The slurry produced therein with 300 g of resin of example 1 included glass frit and simulated HLW sludge. Some of the ingredients of the frit and percentage thereof and some of the ingredients of the sludge were specified, e.g., oxides of Si (77 wt%), B (8 wt%), Li (7 wt %) …, and Fe, Al, K, B, Mn …, respectively, but the amount of resultant slurry processes is not indicated; only the flow rate thereof of 50 mL/min is given without further information. The final example 4 processed 11 L of the slurry of example 3 with 295 g of wet loaded resin, but the water content is not given as well as the nature of the slurry is only generally provided as described above.

In sum, Bickford teaches to one of ordinary skill in the art only broadly to consider the amount of organics in the waste to be processed when selecting the amount of metal oxides for addition, and also teaches that the amount thereof should be adequate to buffer the redox potential. One of ordinary skill in the art would not find the claimed invention of claim 1 of the present application obvious from the disclosure of Bickford even when combined with any of the further cited references.

As the Examiner knows, to establish a prima facie case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Furthermore, the fact a claimed product might be found within the broad field of the prior art (which is not admitted) and one might arrive at it by selecting specific items and conditions does not render the product obvious in the absence of some direction or reasons for making the selection. See *Ex parte Koon*, 132 U.S.P.Q. 359 (Pat. Bd. of App. 1962) and *In re Baird*, 29 U.S.P.Q. 2d 1550 (CAFC 1994).

Applicants bring the attention of the Examiner to page 13 of the disclosure, therein to Table 1, summarizing the results of experiments 1-5. Increasing amounts of LCDs are processed together with 3000 kg of metal scrap. The typical contents of various materials in the LCDs are provided in the middle of page 8, i.e., 83% by weight of glass, 14.9% by weight of plastic film, only 2% by weight of electronic components, and 0.1% by weight of liquid crystals. As the amount of LCDs increases, the amount of furnace sand can be decreased all the way to zero amount by the time 1350 kg of LCDs are used in the process. Additionally, the amount of energy supplied in the added materials, which includes coal (see page 12 for the description of the experiments) can be decreased also. These results are significant and unexpected in view of the disclosure of the cited prior art. Not only does the process achieve the disposal of LCDs, which are an undesired waste product, but it also enables the separation of noble metals from non-noble metals found, e.g., in the metal scrap (see page 12 describing that after cooling the metal fraction with the noble metals can easily be separated from the slag). And at the same time with the increased amounts of LCDs, the amount of furnace sand can be decreased to zero and the amount of energy supplied likewise can be decreased, both of which represent savings in costs and operations. These unexpected results support the non-obviousness of the claimed invention.

Additionally, nothing in Bickford even remotely teaches or suggests that the amount of LCDs supplied should correlate with the amount of metals to be processed. Simply no connection is taught or suggested in the cited art between these parameters. As such, no reason is provided why one of ordinary skill in the art would consider trying to optimize the same.

In view of the above, reconsideration and withdrawal of the rejections are respectfully and courteously requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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